

ELECTRONIC TUBE REFERENCE

12AX7A

Voltage - Dual Triode (similar) electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
TRIODE-TRIODE

Controlled-warm-up high-mu twin triode for AF preamplifier service, offering approximately 100 amplification factor with manufacturer-specified low equivalent noise and hum voltage.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9A	BASE PINS	9
NOMINAL HEATER	12.6 V / 150 mA	PARALLEL HEATER	6.3 V / 300 mA
HEATING	Indirect	SERIES OPERATION	Capable
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

9A - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – 2P	B	P – Plate (Anode)	CONNECTED
PIN2 – 2G1	B	G1 – Control Grid	CONNECTED
PIN3 – 2K	B	K – Cathode	CONNECTED
PIN4 – H	–	H – Heater	CONNECTED
PIN5 – H	–	H – Heater	CONNECTED
PIN6 – 1P	A	P – Plate (Anode)	CONNECTED
PIN7 – 1G1	A	G1 – Control Grid	CONNECTED
PIN8 – 1K	A	K – Cathode	CONNECTED
PIN9 – HCT	–	HCT – Heater Center Tap	CONNECTED

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	62500 Ω
TRANSCONDUCTANCE	0.0016 S
AMPLIFICATION FACTOR	100
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	1.2 W
MAXIMUM CATHODE CURRENT	8 mA
<i>Each identical triode section.</i>	

SECTION2 Triode	
PLATE RESISTANCE	62500 Ω
TRANSCONDUCTANCE	0.0016 S
AMPLIFICATION FACTOR	100
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	1.2 W
<i>High-mu low-noise triode; promoted 250-V Class A1 characteristics.</i>	

High-mu twin triode for AF preamplifier service; source also designates ECC83.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1961 Tung Sol

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1961 TUNG SOL

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	250 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	1.2 mA	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1965 Westinghouse Data Book

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1965 WESTINGHOUSE DATA BOOK

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	12.6 V	—
Heater Current	150 mA	—
Plate Current	0.5 mA	—
Plate Resistance	80000 ohm	—
Transconductance	1250 uS	—
Amplification Factor	100	—
Grid To Plate Capacitance	1.7 pF	—
Input Capacitance	1.6 pF	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Output Capacitance	0.46 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	100 V	EachUnit
Grid Voltage	-1 V	EachUnit



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1966 Tung Sol Electronic Tubes 2 of 4

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1966 TUNG SOL ELECTRONIC TUBES 2 OF 4

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	ClassA;EachSection
Plate current	1.2 mA	ClassA;EachSection
Grid voltage	-2 V	ClassA;EachSection
Heater warm-up time	11 s	BothSections
Equivalent noise and hum voltage average RMS	1.8 uV	SpecifiedTestCircuit

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	62500 ohm	ClassA;EachSection
Transconductance	1600 uS	ClassA;EachSection
Amplification factor	100	ClassA;EachSection

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	1.7 pF	EachSection
Input capacitance	1.6 pF	EachSection
Output capacitance	1.6 pF	EachSection



SOURCE OPERATING CONDITIONS

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1968 General Electric Co

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1968 GENERAL ELECTRIC CO

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	250 V	EachSection
Amplification Factor	100	EachSection
Plate Resistance	62500 ohm	EachSection
Transconductance	1600 uS	EachSection



SOURCE OPERATING CONDITIONS

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1968 Mazda Belvu

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1968 MAZDA BELVU

Section 1 · Triode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	AF_Preamplifier text	—



1971 RCA HB3 Binder 5 of 7

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1971 RCA HB3 BINDER 5 OF 7
Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage series	12.6 V	SeriesHeater
Heater current series	150 mA	SeriesHeater
Heater voltage parallel	6.3 V	ParallelHeater
Heater current parallel	300 mA	ParallelHeater
Plate voltage	100 V	ClassA1;PublishedPoint1
Plate voltage	250 V	ClassA1;PublishedPoint2
Grid voltage	-1 V	ClassA1;PublishedPoint1
Grid voltage	-2 V	ClassA1;PublishedPoint2
Amplification factor	100	ClassA1
Plate resistance	80000 ohm	ClassA1;PublishedPoint1
Plate resistance	62500 ohm	ClassA1;PublishedPoint2
Transconductance	1250 µS	ClassA1;PublishedPoint1
Transconductance	1600 µS	ClassA1;PublishedPoint2
Plate current	0.5 mA	ClassA1;PublishedPoint1
Plate current	1.2 mA	ClassA1;PublishedPoint2
Equivalent noise and hum voltage	1.8 µV	RMS;ReferencedToGrid

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	330 V	ClassA1
Maximum plate dissipation	1.2 W	ClassA1
Peak heater-cathode voltage	200 V	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	1.7 pF	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-cathode-and-heater capacitance	1.6 pF	—
Plate-to-cathode-and-heater capacitance	0.46 pF	—

1971 RCA HB3 BINDER 5 OF 7

Section 2 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage series	12.6 V	SeriesHeater
Heater current series	150 mA	SeriesHeater
Heater voltage parallel	6.3 V	ParallelHeater
Heater current parallel	300 mA	ParallelHeater
Plate voltage	100 V	ClassA1;PublishedPoint1
Plate voltage	250 V	ClassA1;PublishedPoint2
Grid voltage	-1 V	ClassA1;PublishedPoint1
Grid voltage	-2 V	ClassA1;PublishedPoint2
Amplification factor	100	ClassA1
Plate resistance	80000 ohm	ClassA1;PublishedPoint1
Plate resistance	62500 ohm	ClassA1;PublishedPoint2
Transconductance	1250 μS	ClassA1;PublishedPoint1
Transconductance	1600 μS	ClassA1;PublishedPoint2
Plate current	0.5 mA	ClassA1;PublishedPoint1
Plate current	1.2 mA	ClassA1;PublishedPoint2
Equivalent noise and hum voltage	1.8 μV	RMS;ReferencedToGrid

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	330 V	ClassA1
Maximum plate dissipation	1.2 W	ClassA1
Peak heater-cathode voltage	200 V	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	1.7 pF	—
Grid-to-cathode-and-heater capacitance	1.6 pF	—
Plate-to-cathode-and-heater capacitance	0.34 pF	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1975 RCA RC30

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1975 RCA RC30

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc) 12.6 S	3 V	Published in approved ECC83 target datasheet entry; Section1
Heater Current 0.16	300 mA	Published in approved ECC83 target datasheet entry; Section1
Grid to Plate 1.7	1.7 pF	Published in approved ECC83 target datasheet entry; Section1
Grid to Cathode and Heater 1.6	1.6 pF	Published in approved ECC83 target datasheet entry; Section1
Plate to Cathode and Heater 0.46	0.34 pF	Published in approved ECC83 target datasheet entry; Section1
Plate Voltage	330 V	Published in approved ECC83 target datasheet entry; Section1
Negative-bias value	55 V	Published in approved ECC83 target datasheet entry; Section1
Positive-bias value	0 V	Published in approved ECC83 target datasheet entry; Section1
Plate Dissipation	1.2 W	Published in approved ECC83 target datasheet entry; Section1
connection),	6.3 V	Published in approved ECC83 target datasheet entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
250 volts dc ; plate load resistor,	100000 Ω	Published in approved ECC83 target datasheet entry; Section1
250 volts dc ; plate load resistor, 100000 ohms ; cathode resistor,	2700 Ω	Published in approved ECC83 target datasheet entry; Section1
100- μ F capacitor ; grid resistor,	0 Ω	Published in approved ECC83 target datasheet entry; Section1
Heater Voltage (ac/dc) 12.6	6.3 V	Published in approved ECC83 target datasheet entry; Section1
Heater Current 0.15	300 mA	Published in approved ECC83 target datasheet entry; Section1
Grid to Plate	1.3 pF	Published in approved ECC83 target datasheet entry; Section1
Grid to Cathode and Heater	1.3 pF	Published in approved ECC83 target datasheet entry; Section1
Plate to Cathode and Heater	0.6 pF	Published in approved ECC83 target datasheet entry; Section1
Plate Voltage	300 V	Published in approved ECC83 target datasheet entry; Section1
Negative-bias value	50 V	Published in approved ECC83 target datasheet entry; Section1
Cathode Current	10 mA	Published in approved ECC83 target datasheet entry; Section1
Plate Dissipation	1.5 W	Published in approved ECC83 target datasheet entry; Section1
Plate Voltage	250 V	Published in approved ECC83 target datasheet entry; Section1
Plate Resistance	22800 Ω	Published in approved ECC83 target datasheet entry; Section1
Transconductance	1750 μS	Published in approved ECC83 target datasheet entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	3 mA	Published in approved ECC83 target datasheet entry; Section1
Grid Voltage (Approx.) for plate current of	10 mA	Published in approved ECC83 target datasheet entry; Section1
Grid Voltage (Approx.) for plate current of 10 mA	11 V	Published in approved ECC83 target datasheet entry; Section1

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